

Introduction

We developed this Action Plan to engage all whose work supports the prevention and management of heart disease and stroke in Washington State.

This vital work depends on the contribution of partners throughout our health care system, our worksites, and in every one of our communities—including those who finance and deliver health services and the state, local, and tribal organizations that make the essential connections to people who need these services. Our goal is that this plan guides a coordinated approach to state policy that supports what research has shown to be the most effective methods to prevent and treat heart disease and stroke.

Some Definitions:

Cardiovascular disease (CVD) refers to any of the disorders that affect the circulatory system. This includes coronary heart disease, congestive heart failure, and stroke.

Heart disease refers to any affliction that impairs the structure or function of the heart (e.g., atherosclerotic and hypertensive diseases, congenital heart disease, rheumatic heart disease, and cardiomyopathies).

Stroke, also known as cerebrovascular disease or a brain attack, is the interruption of blood supply to the brain due to either an obstruction or rupture of a blood vessel. Stroke that is not fatal often leads to some level of physical or cognitive disability.

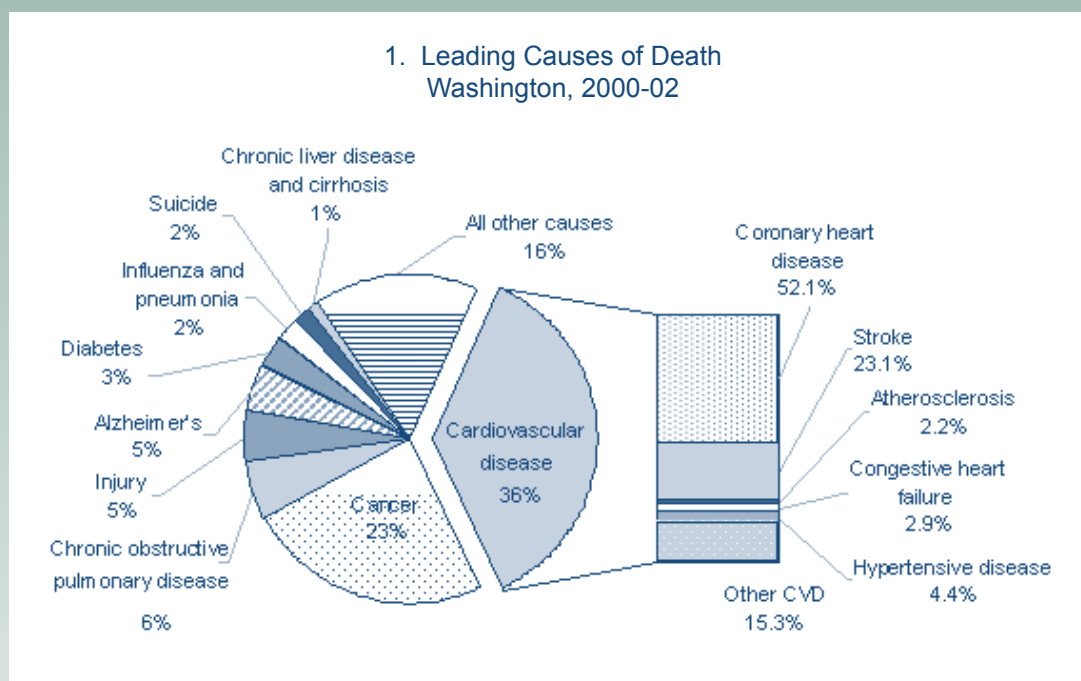
For a more complete glossary, see Appendix A.



The Disease Burden

As reported in *The Burden of Heart Disease and Stroke in Washington State* (December 2004) and as shown in the following chart, the two most common forms of cardiovascular disease (CVD)—heart disease and stroke—are the first and third leading causes of death, respectively, in the United States and in Washington. More than 16,000 Washingtonians died from CVD in 2002—more than a third of all deaths. Appropriate education and prevention programs to modify behavior would substantially reduce this burden of disease and death.

We define the burden of heart disease and stroke in terms of prevalence, morbidity, and mortality rates. Prevalence is difficult to measure precisely. About 7% of adults in Washington say they have been told by a health care professional that they have CVD. Significantly more men than women have CVD, and prevalence increases with age—25% of adults in Washington State age 65 and older have CVD. And these numbers are likely to be an underestimate because many people do not know they have CVD until they suffer a first heart attack or stroke.

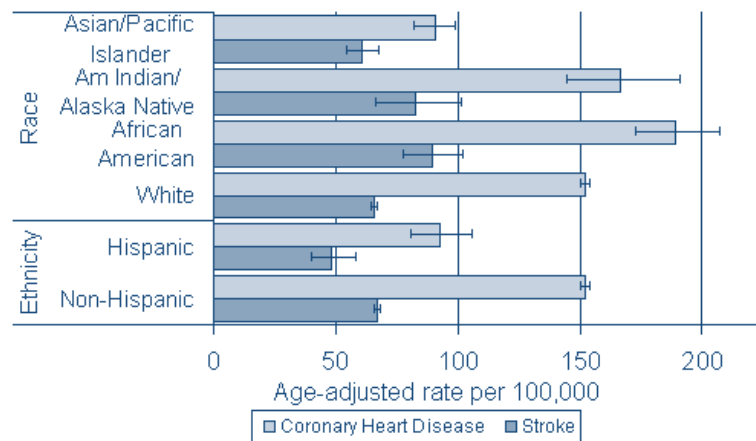




In 2002, the age-adjusted mortality rate for coronary heart disease—the most common form of heart disease—was lower in Washington State than for the nation as a whole (148 deaths per 100,000 population for Washington compared with 178 per 100,000 for the United States). Coronary heart disease mortality is higher in specific groups such as men, older people, and African Americans. While coronary heart disease death rates for most racial and ethnic groups in Washington were lower than the corresponding U.S. rates, the mortality rate among American Indians and Alaska Natives in Washington was higher than the rate for this group nationwide (166 deaths per 100,000 and 118 deaths per 100,000, respectively).

The picture for stroke mortality in our state is alarming: 66 deaths per 100,000 population, the eighth highest in the nation, compared to the U.S. rate of 58 deaths per 100,000. American Indians and Alaska Natives in Washington died from stroke at twice the national rate for this racial group (82 deaths per 100,000 compared with 41 deaths per 100,000); this is higher than the Washington stroke death rate for whites (66 deaths per 100,000) and nearly equal to the rate for African Americans (89 deaths per 100,000). See Figure 2, below, for rates of death from both coronary heart disease and stroke.

2. Mortality Rates for Coronary Heart Disease and Stroke
By Race and Ethnicity
Washington, 2000-02

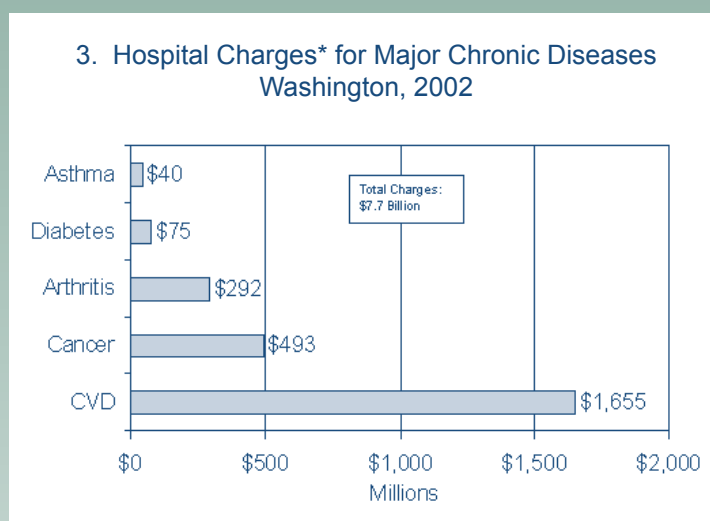


95% confidence intervals are displayed as bars with two hatches—this means that, in 95 out of 100 cases, the true value is contained within this interval. For more information on the use of confidence intervals throughout this document, see *The Health of Washington State*, 2002.¹

The Burden of Hospitalizations

Mortality rates represent the burden of only the worst-case scenario—death—for a disease process that often begins decades earlier. Additional burden is represented by the costly procedures and hospitalizations of those with CVD.

CVD accounted for nearly 4 of every 10 hospitalizations in Washington State in 2002. Patients with either heart disease or stroke had a longer average length of stay than those hospitalized for other conditions. In 2002, as the chart below shows, hospitalization charges for CVD amounted to \$1.7 billion—more than for any other chronic condition. But this figure underestimates the true cost of CVD, as it accounts for only direct charges for inpatient hospitalizations with CVD as the first listed diagnosis and does not include indirect costs such as outpatient procedures and missed time at work. When inpatient hospitalizations with CVD as any diagnosis were considered, total charges amounted to more than \$4.1 billion, more than half of the charges for inpatient hospitalizations.



* Based on first-listed diagnosis

After leaving the hospital, CVD patients are more likely than others to require additional skilled care. And skilled care, both home-based and community-based, to assist with activities of daily living can be very costly. More CVD patients, particularly those hospitalized for stroke and congestive heart failure, were discharged to skilled nursing facilities compared with patients with other conditions. Patients hospitalized for stroke or congestive heart failure were also more likely to die during their stay (8.8% for stroke, 4.8% for congestive heart failure) when compared with those hospitalized for non-CVD conditions (1.7%).



System Priorities

A system to reduce CVD morbidity and mortality should be comprehensive. It should address important evidence-based guidelines for appropriate prevention and management of heart disease, stroke, and associated risk factors. But it should not stop there. A comprehensive statewide 9-1-1 system, to ensure timely arrival of Emergency Medical Services (EMS), combined with public awareness of warning signs and symptoms, empowers patients, providers, and the community to take an active role in improving outcomes of those who experience a heart attack or stroke.

Interventions applied “upstream” in the health care system have the potential to reduce both cardiac and stroke disease and death rates. These include increased use of evidence-based guidelines for CVD prevention in patients at high risk and an effective and informed EMS system and team of first responders to transport patients rapidly to a hospital capable of evaluating the patient for eligibility to receive time-dependent interventions.

The following table shows that nearly two-thirds of cardiac deaths in Washington occur before transport to a medical facility.

Location of Cardiac Death Washington, 2000-02			
Location	Percent	Age-adjusted rate per 100,000	(95% CI) [†]
Hospital	33.3	68.0	(65.8, 70.2)
Emergency room	4.5	9.0	(8.2, 9.8)
In transport	0.1	0.2	(0.1, 0.4)
Total pre-transport	62.1	126.0	(123.1, 128.9)
Home	30.9	62.7	(60.6, 64.8)
Other places	5.2	10.4	(9.5, 11.2)
Nursing home (includes hospice)	26.0	53.0	(51.1, 54.9)

[†] 95% confidence intervals

Risk Factors

Several risk factors can contribute to CVD. Some—such as age, family history, and genetics—cannot be changed. These are nonmodifiable risk factors that represent a significant contribution to the burden of disease. Washington ranks eighth among the states in the rate at which its population is aging. By 2020, the number of Washington residents ages 65 and older will double to about a million.

Several risk factors contributing to heart disease and stroke are modifiable. These include high blood pressure, high blood cholesterol, diabetes, obesity, tobacco use, poor nutrition, and physical inactivity. These risk factors and the diseases to which they lead affect people in their wage-earning years, causing loss of income, an increase in the number of days lost from work, and decreased productivity while at work.

According to the 2003 Washington Behavioral Risk Factor Surveillance System (BRFSS) survey², men were more likely than women to have high blood pressure and high blood cholesterol. The prevalence of both conditions increased with age and decreased as annual income and educational levels increased. Prevalence of both high blood pressure and high cholesterol was lower in Asian and Pacific Islanders compared with whites; prevalence of these factors for African Americans and American Indians and Alaska Natives was similar to whites. Prevalence of both conditions was significantly lower for Hispanics compared with non-Hispanics. Respondents living in rural areas were more likely to have both high blood pressure and high cholesterol compared with those living in urban areas.

Those who have CVD are significantly more likely to have high blood pressure, high blood cholesterol, diabetes, and obesity compared with those without CVD. Controlling these risk factors through lifestyle modification and medication, if appropriate, is especially important for those who have already suffered a first event, to prevent a recurrent heart attack or stroke.



State and local level data related to detection, treatment, and control of high blood pressure and high blood cholesterol are scarce. According to the 2003 BRFSS, the proportion of women screened for high blood cholesterol was significantly higher than that of men. Increasing age, income, and educational level increased the likelihood of screening. Compared with whites, Asian and Pacific Islanders were less likely to have their cholesterol checked, and Hispanics were less likely than non-Hispanics. The likelihood of taking medication to control high blood pressure increased for older age groups and for women. Hispanics were less likely than non-Hispanics to take high blood pressure medications.

Guidelines addressing treatment for high blood pressure³ and high blood cholesterol⁴ strongly recommend lifestyle modification to treat these conditions at the early stages. Such modifications include improving eating habits and nutrition, increasing physical activity, and quitting tobacco use. Only at a more advanced stage of either high blood pressure or high blood cholesterol—or for those with a family history of premature CVD—do the guidelines recommend taking medication to help manage these conditions.

A recent state inventory of current activities addressing heart disease and stroke prevention and management in Washington reveals both system strengths and opportunities for improvement. Strengths of the current state system for the prevention of heart disease and stroke include: capacity for inter-agency cooperation, efforts of health plans to conduct disease management programs and provide coverage for telemedicine, and quality improvement activities, including pay-for-performance. Opportunities for improving the system include: increasing access to needed services for rural residents and tribes (among others), addressing cultural factors when designing programs to address lifestyle changes, and improving systems so that people with heart attack or stroke are taken to appropriate facilities. Finally, while Washington is fortunate to have a strong EMS system, recommendations developed in 2002 to improve emergency response systems for acute cardiac events were never implemented due to a lack of funding⁵.

